

REMARKS

This application has been reviewed in light of the Office Action dated September 24, 2008.

Claims 1-33 are now presented for examination. Claims 1, 6, 7, 10, 17, 18, 21 and 26 have been amended. Claims 1, 10, 21 and 26 are independent. Favorable review is respectfully requested.

Claim 1 is directed to a semiconductor device package including a lead frame with a plurality of leads; each of the leads includes an interposer having opposing first and second ends, and a board connecting post extending from the interposer. Claim 1 has been amended to recite that the interposer is spaced apart from the package face by a distance; the interposer has a recess formed therein adjacent the second end; and a corner between a side surface of the board connecting post and an end surface of the board connecting post is removed to form a relief, the relief having a height less than said distance. These added features are clearly shown in the specification at least at page 12, first full paragraph (paragraph [0068] of the published application), with reference to FIGS. 14a and 14b (showing the recess) and FIGS. 15a and 15b (showing both the recess and the relief). Independent claim 21 (directed to a semiconductor device package), and independent claims 10 and 26 (directed to a method) have also been amended to recite these features. Dependent claims 6, 7, 17 and 18 have been amended to make those claims consistent with the amendments to claims 1 and 10.

Claims 1, 2, 5, 6, 8-11 14, 16, 17, 19 and 20 were rejected under 35 U.S.C. § 102(e) as anticipated by Seo et al. (U.S. Pat. No. 6,759,737). Claims 7 and 18, indirectly dependent from claims 1 and 10 respectively, were rejected under 35 U.S.C. § 103(a) as obvious from Seo et al. The applicants respectfully submit that independent claims 1 and 10 are patentable over the cited art, for the following reasons.

As noted above, claims 1 and 10 have been amended to recite a recess and a relief, where the relief has a height less than the distance by which the interposer is spaced from the package face. Seo et al. is understood to disclose a device package (with a flip chip in FIG. 2B and a wirebond arrangement in FIG. 4B) in which a lead frame has an interposer including a connecting post and a support post. Seo et al. also discloses a molding compound covering the semiconductor device and underlying a portion of the interposer. Seo et al. also appears to

disclose that a corner of the lead frame is removed and filled with the molding compound (FIGS. 2B, 3B and 4B). Seo et al. offers no teaching or suggestion regarding the claimed recess, and furthermore does not teach or suggest a relief as recited in the claims. It should be noted that the corner of the Seo et al. lead frame, filled with molding compound, has a height equal to the spacing between the interposer and outer face of the package. Accordingly, the device package of claim 1 and method of claim 10 are not anticipated by, or rendered obvious by, the Seo et al. reference.

Claims 3, 4, 12, 13, 21-23 and 26-29 were rejected under 35 U.S.C. § 103(a) as unpatentable over Seo et al. in view of Sakamoto et al. (U.S. Pat. Application Publication No. 2001/0045625). Claims 3 and 4 depend from claim 1; claims 12 and 13 depend from claim 10; claims 22 and 23 depend from claim 21; and claims 27-29 depend from claim 26. Seo et al. is understood to disclose a package including a device, lead frame, molding compound and wire bond sites; Sakamoto et al. is relied upon for a disclosure of wedge bonding. As discussed above, Seo et al. neither discloses nor suggests the recess and relief formed in the lead frame as recited in independent claims 1, 10, 21 and 26. Sakamoto et al. does not disclose or suggest the features of the lead frame recited in the amended independent claims 1, 10, 21 and 26, and thus cannot remedy the above-noted defects of Seo et al. as a reference against the amended independent claims. Even if these two references were combined to suggest a lead frame with an interposer and wedge bonding, the amended claims are not rendered obvious by the cited references.

Dependent claim 15 was rejected under 35 U.S.C. § 103(a) as unpatentable over Seo et al. in view of Ball (U.S. Pat. No. 6,299,057); dependent claims 24, 25 and 30-33 were rejected under 35 U.S.C. § 103(a) as unpatentable over Seo et al. and Sakamoto et al. in view of one or another of Lin (U.S. Pat. No. 6,238,952), Ball and Aoki (U.S. Pat. No. 5,263,246). These additional references all relate to aspects of wire bonding in semiconductor packages, but do not suggest any particular features of a conductive lead frame. Accordingly, none of the additional references suggest the above-noted features of the independent claims, and thus cannot remedy the above-described defects of Seo et al. and Sakamoto et al. as references against those claims. Accordingly, dependent claims 15, 24, 25 and 30-33 are not rendered obvious by the cited references, or combinations thereof.

The other claims this application are dependent from one or another of the independent claims discussed above and are believed to be patentable for the same reasons. Since each dependent claim is directed to a separate aspect of the invention, however, the individual consideration of each claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, favorable consideration and early passage to issue of the application are respectfully requested.

The applicants' undersigned attorney may be reached by telephone at 212-551-2625. All correspondence should continue to be directed to the address given below, which is the address associated with Customer Number 27267.

Respectfully submitted,



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